

Notice of Allowability

Application No.

10/698,184

Examiner

Hsien-ming Lee

Applicant(s)

GASNER ET AL.

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 8/24/05 & 9/15/05.
2. ☒ The allowed claim(s) is/are 39-56, 58-63, 66, 67 and 85-102.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

HSIEN-MING LEE
PRIMARY EXAMINER

9/29/05

DETAILED ACTION

Remarks

1. Applicant's arguments filed 8/24/2005 and 9/15/2005 are persuasive. The Final rejection has withdrawn.
2. Applicant's cancellation to claims 1-38, 57, 64, 65 and 68-84 is acknowledged. Claims 39-56, 58-63, 66, 67 and 85-102 are pending in the application.

Examiner's Amendment

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Scott V. Lundberg (Reg. No. 41,958) on Sep. 29, 2005.

4. The application has been amended as follows:

(note) please refer to the amendment filed on **Sep. 15, 2005** for the following changes.

In claim **85**, at line **5**, **insert** – intermediate – before “conductive” ; at line **6**, **replace** “layers” with – layer --; at line **10**, **delete** “one of more”; at line **11**, **replace** “layers” with – layer--; at line **11**, **delete** “one or more”; and at line **12**, **replace** “layers” with – layer --.

In claim **86**, at line **2**, **delete** “one from” and **replace** “comprising” with –consisting of --.

In claim **87**, at line **2**, **delete** “one of” after “forming”; and at line **4**, **replace** “insulation” with – insulating material --.

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In claim **88**, at line **2**, **delete** “an” after “gaps” and **delete** “one of “ after “in”; and at line **3**, **delete** “the one of “ after “through.”

In claim **89**, at line **1**, **delete** “the one of.”

In claim **95**, at line **6**, replace “intermediate conductive layer” with – **or more** intermediate conductive layers --. (Emphasis added)

In claim **95**, at lines **8-9**, **replace** the entire paragraph of “ forming at least one layer of insulating material separating the at least one conductive layers from each other; and “ **with** the following paragraph -- forming at least one layer of insulating material between the top conductive layer and an intermediate conductive layer closest the top conductive layer of the one or more intermediate conductive layers and between layers of the more intermediate conductive layers, wherein the top conductive layer and every one of the more intermediate conductive layers are separated from each other by a layer of insulating material; and --.

In claim **95**, at line **10**, **replace** “ one of the at least one intermediate conductive layers” with -- the one intermediate conductive layer --.

In claim **95**, at lines **11-12**, **replace** “the at least one intermediate conductive layers “ after “of” with -- the one or more intermediate conductive layers --.

In claim **95**, at line **13**, **delete** “ one of the at least” before “intermediate.”

In claim **95**, at line **14**, **replace** “ at least one “ before “intermediate” with – one or more --.

In claim **96**, at lines **1-2**, **replace** “ the one of the at least one intermediate conductive layer “ with -- the intermediate conductive layer --.

In claim **97**, at line **2**, **delete** “one of” after “and.”

In claim 97, at line 3, **delete** “the one of” after “separating.”

In claim 98, at line 2, **replace** “one of the at least one layers” with – the at least one layer --.

In claim 98, at line 3, **replace** “an intermediate” with – the intermediate --.

In claim 98, at line 4, **replace** “the remaining at least one layers of insulation” with – remaining layers of insulating material between layers of the more intermediate conductive layers --.

Allowable Subject Matter

5. Claims 39-56, 58-63, 66, 67 and 85-102 are allowed.

6. The following is an examiner’s statement of reasons for allowance:

The prior art of record at least neither teaches nor suggests the gaps take up *no more than 10%* of the total area of the first metal layer under the bond pad; patterning the first metal layer to form gaps, wherein the gap *extend in a current flow direction*; the relatively stiff material is *TiN* or is *TiW*; at least one sub-layer of material that is relatively *stiff* is adapted to *prevent the cracking* of the one intermediate conductive layer; and forming gaps in one of the one intermediate conductive layer closest the top conductive layer, the gaps being adapted to *prevent cracking* of the one intermediate conductive layers by forming pillars of relatively stiff insulation material passing through the one of the one intermediate conductive layers closest the top conductive layer.

7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hsien-ming Lee whose telephone number is 571-272-1863. The examiner can normally be reached on Tuesday-Thursday (7:30 ~ 6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hsien-ming Lee
Primary Examiner
Art Unit 2823

Sep. 29, 2005

HSIEN-MING LEE
PRIMARY EXAMINER 